NEXT-TIME QUESTION

Whenever an interaction occurs in a system, forces occur in equal and opposite pairs. Which of the following do *not* always occur in equal and opposite pairs?

a) Impulses.
b) Accelerations.
c) Momentum changes.
d) But all of these occur in equal and opposite pairs.
e) None of these do.

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Answer: b

Because time for each interaction part is the same, impulses and momentum changes also occur in equal and opposite pairs. But not necessarily accelerations, because the masses of the interaction may differ. Consider equal and opposite forces acting on masses of different magnitude.

$$\frac{F}{m} = a \qquad \frac{F}{m} = a$$